

3.5 PHYSICAL ENVIRONMENT

3.5.1 Air Quality

Air pollution originates from a variety of sources (fire, industrial activity, and solid waste disposal), engine combustion is the most prevalent source. The impact resulting from highway construction ranges from intensifying existing air pollution problems to improving the ambient air quality. Changing traffic patterns are a primary concern when determining the impact of a new highway facility or the improvement of an existing highway facility. Motor vehicles emit carbon monoxide (CO), nitrogen oxide (NO), hydrocarbons (HC), particulate matter, sulfur dioxide (SO₂), and lead (Pb) (listed in order of decreasing emission rate). Of particular concern for transportation projects are hydrocarbons, which are one of the parent pollutants to ozone (O₃), and CO, which is the major pollutant from engine combustion and one that can cause headaches and dizziness in high concentrations. Automobiles are considered to be the major source of CO in the I-95 corridor.

Air quality is defined according to criteria established by the US Environmental Protection Agency (USEPA). Under the Clean Air Act (CAA), these criteria, designated as the National Ambient Air Quality Standards (NAAQS), have been established for six air pollutants: CO, Pb, nitrogen dioxide (NO₂), SO₂, particulate matter (PM 2.5 and PM 10), and O₃. The NAAQS for these pollutants are presented in **Table 3-8**. They represent levels of air pollutants and exposure periods that, according to the USEPA, pose no significant threat to human health or welfare. North Carolina has also adopted these air quality standards. Mobile Source Air Toxics (MSAT), though not criteria pollutants, are also included in the analysis as per recent NEPA analysis requirements.